CPGR | CENTRE FOR PROTEOMIC & GENOMIC RESEARCH

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Project ID: 0872PIP_MADCAP_DNAVA
Study plan version 1
12 February 2016

RE: Analytical study plan for the Validation of the DNAStable Plate for transportation of DNA samples from U01 MADCaP Centres to the CPGR, Cape Town South Africa

Dear Principal Investigator

Thank you for participating in the evaluation of the DNAStable plate for transferring DNA from your centre to the CPGR. This will be an invaluable exercise to ascertain the suitability of this plate for transferring DNA at controlled ambient temperature instead of dry ice shipment which is very costly. The CPGR has prepared the following study plan that defines the objectives, deliverables, timeline and milestones to ensure that all centres are able to complete this study in a timely manner. Your contact for this project will be:

Name: Jo McBride
Email address: jo.mcbride@cpgr.org.za
Contact number: +2721 4475669

• Study Objectives

The cost of using dry ice to ship DNA samples within Africa is very expensive and this is primarily associated with dry ice not always being readily available in certain countries. Dry ice may have to be shipped in (imported) and then subsequently shipped out again. The purpose of this project is to validate the DNAStable Plate to determine its suitability for shipping DNA samples at ambient temperature for the MADCaP project. Each participating centre will prepare the plate with some DNA samples to be sent to the CPGR, preferably DNA extracted from a range of sources e.g. blood, buccal swabs, saliva, mouth wash and any other source that will be used in the GWAS study. The samples will be tested for their quality, concentration and integrity – these are the critical characteristics that will be evaluated to determine that the DNA meets the requirements for downstream processing.

• CPGR Deliverables

Upon receipt of each DNAStable Plate the CPGR will resuspend the DNA samples to the original volume used by each centre (10µl). The quality of DNA samples will be evaluated by gel electrophoresis (for integrity), NanoDrop spectrophotometer (for purity and overall concentration) and a picogreen assay to determine double-stranded DNA concentration.

An analytical report will be prepared for each centre detailing the results and where necessary with recommendations for DNA extraction improvement.

- **MADCaP Centre Deliverables**

Each centre should submit DNA from a range of sources (blood, saliva, buccal swabs) and indicate the extraction assay used e.g. QIAamp DNA mini kit. At least 10 samples for each sample type should be delivered to the CPGR i.e. if there are three sample types, there should be 30 samples in total on the plate. The concentration and purity must be determined using the NanoDrop (or other) UV spectrophotometer. The samples must also be run on a 2% agarose gel alongside a 1 Kb DNA ladder to display the DNA integrity.

Each centre will aliquot an exact volume of 10 µl undiluted DNA samples randomly across the plate and dry down the DNA as described in the attached protocol (Appendix C: DNAstable® Protocol). Samples that are dilute (<10ng/ul) would need to be concentrated using either a DNA concentrator (if available) or use a precipitation step (Appendix D: Genomic DNA Cleanup) prior to being included on the DNAStable plate.

The attached Sample Submission and Layout form will be completed by each centre providing information about all samples submitted for the DNAStable plate sample assessment. This form comprises three worksheets viz. Sample Submission, Sample Layout and Gel QC.

Each worksheet must include the following information:

- **Sample Submission**
  - information required must include the MADCap Centre's own QC results such as concentrations, 260/280 and 260/230 ratios, sample origin (blood, saliva, buccal swab etc).
- **Sample Layout**
  - the location on the DNAStable Plate of the DNA samples submitted must be identified
- **Gel QC**
  - a picture of all samples run on a 2% agarose gel must be inserted with the sample IDs and DNA ladder used (1 Kb Ladder) recorded in the order as they appear in each picture submitted.

Each centre will contact their respective World Courier agents for the collection of plates and Sample Submission and Layout form for delivery to the CPGR. Please note all required documents should be in place prior to arrangement of shipping; these include export permits from the Centre's country and import permits into South Africa as well as the and MTA between the centre and CPGR. The CPGR, World Courier agent and the centre will work collectively to ensure these are in place.

An Analytical Report will be prepared by the CPGR for each centre following the assessment of all samples. Centres will be informed where sample quality is sub-optimal and recommendations will be provided for improvement of DNA extraction/purification.

• Milestones

1. Description of this project plan - **CPGR**
2. Each centre to aliquot and dry down DNA in DNAStable plates – **MADCaP Centre**
3. Centre to contact World Courier to arrange collection of plate, completed Sample Submission and Plate Layout forms - **MADCaP Centre**
4. Waybill number sent to the CPGR - **MADCaP Centre**
5. The CPGR to notify centres of plate arrival - **CPGR**
6. Scheduling of DNA QC - **CPGR**
7. Preparation of analytical report and delivery to each centre - **CPGR**
8. Project sign-off - **CPGR**
9. Centre feedback - **CPGR**

• Appendices

Appendix A: Sample submission and layout form

Appendix B: Acceptance form

Appendix C: DNAStable plate protocol

Appendix D: Genomic DNA Cleanup

Appendix E: QIAamp DNA Mini and Blood Mini Handbook

Should you wish to proceed with this project, kindly sign, scan and return by email to the project manager the following documents:

- The attached acceptance form

Your contact for this project will be:

Name: Jo McBride
Email address: jo.mcbride@cpgr.org.za
Contact number: +2721 4475669

Please note that should a centre require assistance with sample collection, storage, DNA extraction or preparation of the DNAStable plate please do not hesitate to contact the CPGR and individual calls will be scheduled to address specific questions.